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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/593,164

10/18/2006

Swapnil Bhargava

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EXAMINER

GOUGH, TIFFANY MAUREEN

ART UNIT

PAPER NUMBER

1657

NOTIFICATION DATE

DELIVERY MODE

11/27/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Patents-US-NY@novozymes.com

Office Action Summary	Application No. 10/593,164	Applicant(s) BHARGAVA ET AL.	
	Examiner TIFFANY M. GOUGH	Art Unit 1657	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/31/2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5,9,10,13-15,17-20 and 23-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,9,10,13-15,17-20 and 23-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/18/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1, 2, 5, 9, 10, 13-15, 17-20, 23-35 are pending and have been considered on the merits herein.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1, 5, 9, 10, 13-15, 18-26, 28-35 are rejected under 35 U.S.C. 102 (b) as being anticipated by Veit et al. (WO 02/38787 A2) supported by (SCORE sequence search results, p.1-4).

Applicant claims a method for liquefying starch-containing material comprising liquefying at a temperature between 70-90°C for 15-90 minutes with a bacterial alpha-amylase, i.e. a *Bacillus* alpha-amylase, followed by treating with an acid alpha-amylase having an amino acid sequence which has at least 70% identity to SEQ ID NO:1, at a temperature between 60-80°C for 30-90 minutes. The method further comprises steps of dry milling and forming a slurry prior to the liquefaction steps. The liquefied material is subjected to saccharification and fermentation (SSF). Applicant also claims a process of producing a fermentation product, i.e. ethanol, from a starch containing material comprising liquefying, saccharifying and fermenting the starch material in the presence of a fermenting organism such as a yeast, specifically a *Saccharomyces* spp. They also teach adding a glucose glucoamylase during fermentation.

Veit teach a method of liquefying a starch-containing material comprising dry milling (p.3-4), subjecting the starch material to a *Bacillus* alpha-amylase at temperatures between 70-90°C followed by alpha-amylase treatment at temperatures between 60-80°C (p.5, p. 9-14). The alpha-amylase disclosed by Viet has at least 70% identity to SEQ ID NO:1 (support can be found on pgs. 1-4 of the SCORE Sequence search results, which disclosed 100% identity). Veit also teach a process of producing a fermentation product, i.e. ethanol, from a starch containing material (p. 2, lines 30-35) comprising liquefying, saccharifying and fermenting the starch material in the presence of a fermenting organism such as yeast, specifically a *Saccharomyces* spp. (p.17),

wherein the saccharification and fermentation is carried out as a simultaneous saccharification and fermentation process (SSF) (p.6-7). They also teach adding a glucoamylase during fermentation (p.6-7, p.14). Veit also disclose using a *B. stearotherophilus* alpha-amylase (p.10, lines 5-9).

Thus, the reference anticipates the claimed subject matter.

Claims 1, 5, 9, 10, 13-15, 18-26, 28-35 are rejected under 35 U.S.C. 102 (e) as being anticipated by Veit al. (US 2004/0091983 A1).

Veit teach a method of liquefying a starch-containing material comprising dry milling (0011,0012,0022,0029-0034), subjecting the starch material to a *Bacillus* alpha-amylase at temperatures between 70-90°C followed by alpha-amylase treatment at temperatures between 60-80°C (0039-0042). The alpha-amylase disclosed by Viet has at least 70% identity to SEQ ID NO:1 (0107-112, 0120,0121)(support can be found on pgs. 1-2 of the SCORE Sequence search results part 2, which disclosed 100% identity). Veit also teach a process of producing a fermentation product, i.e. ethanol, from a starch containing material (0051-55, 0139) comprising liquefying, saccharifying and fermenting the starch material in the presence of a fermenting organism such as yeast, specifically a *Saccharomyces* spp. (0161,0162), wherein the saccharification and fermentation is carried out as a simultaneous saccharification and fermentation process (SSF) (0051-0055). They also teach adding a glucoamylase during fermentation (0054). Veit also disclose using a *B. stearotherophilus* alpha-amylase (0108).

Thus, the reference anticipates the claimed subject matter.

Claims 1, 5, 9, 10, 13-14, 17-20, 23-25, 28-31, 35 are rejected under 35 U.S.C. 102 (e) as being anticipated by Olsen et al. (US 2004/0115779 A1).

Olsen teach a method of liquefying a starch-containing material comprising dry milling (0051, 0052), subjecting the starch material to a *Bacillus* alpha-amylase at temperatures between 70-90°C followed by alpha-amylase treatment at temperatures between 60-80°C (0054-0057, 0112). Olsen also teach a process of producing a fermentation product, i.e. ethanol, from a starch containing material (0048) comprising liquefying, saccharifying and fermenting the starch material in the presence of a fermenting organism such as yeast, specifically a *Saccharomyces* spp. (0034-00442,0064), wherein the saccharification and fermentation is carried out as a simultaneous saccharification and fermentation process (SSF) (0039). They also teach adding a glucoamylase during fermentation (0088-0092). Olsen also disclose using a *B. stearrowthermophilus* alpha-amylase (0112). Olsen also teach the mash obtained to have a DE value of above 16 (0063).

Thus, the reference anticipates the claimed subject matter.

Claims 1, 5, 9, 10, 13-14, 17-20, 23-25, 28-31, 35 are rejected under 35 U.S.C. 102 (b) as being anticipated by Olsen et al. (WO 02/074895 A2).

Olsen teach a method of liquefying a starch-containing material comprising dry milling (p.4, lines 20-26), subjecting the starch material to a *Bacillus* alpha-amylase at temperatures between 70-90°C followed by alpha-amylase treatment at temperatures between 60-80°C (p.4, lines 30-p.5, p.13, lines 30-p.14). Olsen also teach a process of

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producing a fermentation product, i.e. ethanol, from a starch containing material (p.2, lines 1-5) comprising liquefying, saccharifying and fermenting the starch material in the presence of a fermenting organism such as yeast, specifically a *Saccharomyces* spp. (p.4-6,), wherein the saccharification and fermentation is carried out as a simultaneous saccharification and fermentation process (SSF) (p.5, lines 23-33). They also teach adding a glucoamylase during fermentation (p.10, lines 29-p.11). Olsen also disclose using a *B. stearothermophilus* alpha-amylase (p.13, line 34). Olsen also teach the mash obtained to have a DE value of above 16 (p.7, lines 28-29).

Thus, the reference anticipates the claimed subject matter.

Claims 1, 5, 9, 10, 13, 14, 18-20, 23-25, 28-31, 35 are rejected under 35 U.S.C. 102 (e) as being anticipated by Otto et al. (US 2005/0026261 A1).

Otto teach a method of liquefying a starch-containing material comprising dry milling (0014, 0024-0029), subjecting the starch material to a *Bacillus* alpha-amylase at temperatures between 70-90°C followed by alpha-amylase treatment at temperatures between 60-80°C (0030-0037, 0065, 0068). Otto also teach a process of producing a fermentation product, i.e. ethanol, from a starch containing material comprising liquefying, saccharifying and fermenting the starch material in the presence of a fermenting organism such as yeast, specifically a *Saccharomyces* spp. (0042-0048) wherein the saccharification and fermentation is carried out as a simultaneous saccharification and fermentation process (SSF). They also teach adding a

glucoamylase during fermentation (0089-0090). Otto also disclose using a *B. stearothermophilus* alpha-amylase (0065).

Thus, the reference anticipates the claimed subject matter.

Claims 1, 5, 9, 10, 13, 14, 18-20, 23-25, 28-31, 35 are rejected under 35 U.S.C. 102 (b) as being anticipated by Veit et al. (US 20020006647A1).

Veit ('647) teach a method for liquefying starch-containing material comprising liquefying at a temperature between 70-90°C for 15-90 minutes with a bacterial alpha-amylase, i.e. a *Bacillus* alpha-amylase (0072-0074), followed by treating with an acid alpha-amylase at a temperature between 60-80°C for 30-90 minutes (0011-0025). The method further comprises steps of dry milling and forming a slurry prior to the liquefaction steps. The liquefied material is subjected to saccharification and fermentation (SSF)(0017-0024, 0044-0051). Applicant also claims a process of producing a fermentation product, i.e. ethanol, from a starch containing material comprising liquefying, saccharifying and fermenting the starch material in the presence of a fermenting organism such as a yeast, specifically a *Saccharomyces* spp (0098). They also teach adding a glucose glucoamylase during fermentation (0075-0079).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 5, 9, 10, 13,14,15, 17-20, 23-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of each of Veit (US 20020006647 A1), Otto et al. (US 2005/0026261 A1), Veit et al. (WO 02/38787 A2), Olsen et al. (WO 02/074895 A2), Olsen et al. (US 2004/0115779 A1) and Veit et al. (US 2004/0091983 A1) in view of EP 0252730.

Veit ('647) teach a method of liquefying a starch-containing material (0054) comprising subjecting the starch material to a *Bacillus* alpha-amylase after first being milled either by wet or dry milling (0017,0019). They also teach that a side stream from starch processing may also be used (0019, 0055). The enzymatic liquefaction step is carried out at temperatures of 60-95C and pH of 4.5-6.5 and is then subjected to a jet-cooking step (0020, 0044-0051). Veit also disclose *B. stearothermophilus* alpha-

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amylase variant with the claimed mutations (0072). Veit also teach a glucoamylase (0075-0079).

Olsen ('779) teach a method of liquefying a starch-containing material comprising milling (0033) , subjecting the starch material to an alpha-amylase followed by jet cooking at 90-120°C for 1-15 minutes, i.e. liquefaction (0035,0036,0056), saccharification, fermentation and distillation (0026-0030,0044,0051). They teach carrying out this process at a pH of 4.5-6.5 (0036) and that the materials may be a side stream from starch processing (0035). Olsen also disclose *B. stearrowthermophilus* alpha-amylase variant with the claimed mutations (0112,0114). Olsen also teach a glucoamylase (0088-0092).

Olsen ('895) teach a method of liquefying a starch-containing material comprising milling (p.4, lines 20-26) , subjecting the starch material to an alpha-amylase followed by jet cooking at 90-120°C for 1-15 minutes, i.e. liquefaction (p.4-5). They teach carrying out this process at a pH of 4.5-6.5 and that the materials may be a side stream from starch processing (p.4, lines 34-35). Olsen also disclose *B. stearrowthermophilus* alpha-amylase variant with the claimed mutations (p.13, lines 29-p.14, lines 1-13). Olsen also teach a glucoamylase (p.10, lines 29-p. 11).

Veit ('787) teach a method of liquefying a starch-containing material comprising milling (p.4-5) , subjecting the starch material to an alpha-amylase (p.9-12) followed by jet cooking at 90-120°C for 1-15 minutes, i.e. liquefaction (p.4-5). They teach carrying

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out this process at a pH of between 4.5-6.5, and that the materials may be a side stream from starch processing (p.4-6). Veit also disclose *B. stearrowthermophilus* alpha-amylase variant with the claimed mutations (p.9, lines 28-p.14). Veit also teach a glucoamylase (p.14, lines 15-37).

Otto ('261) teach a method of liquefying a starch-containing material comprising milling, liquefaction at temperatures of 60-95C for 10-120 minutes followed by jet cooking at 90-120°C for 1-15 minutes, i.e. liquefaction (0024-0037). The process comprises subjecting the starch material to a *Bacillus* alpha-amylase and/or variant thereof (0065). Otto also teach a glucoamylase (0089-0092).

Veit ('983) teach a method of liquefying a starch-containing material comprising milling, liquefaction at temperatures of 60-95C for 10-120 minutes followed by jet cooking at 90-120°C for 1-5 minutes, i.e. liquefaction (0029-0044). The process comprises subjecting the starch material to a *Bacillus* alpha-amylase and/or variant thereof (0107-0121). Veit also teach a glucoamylase (0139-0147).

As stated above, the references teach a method of liquefying a starch-containing material comprising treating the material at a temperature above the gelatinization temperature with an alpha-amylase in two or more stages. They also teach jet-cooking and milling. The above references also teach the alpha-amylase to be of bacterial or fungal origin.

The references do not teach jet-cooking before stage (a), i.e. before liquefaction.

EP '730 teaches the liquefaction process to be jet-cooking at a temperature within 100-115°C followed by reducing temperatures to around 90°C (p. 3, lines 60-65) in a method of liquefying a starch-containing material.

It would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of the primary references and to then jet cook before liquefaction because EP '730 teaches jet cooking prior to liquefying starch. Thus, the above references all teach a liquefaction process to comprise a jet-cooking and liquefying at a lower temperature than that used for the jet-cooking step. Such steps are well known to those of ordinary skill in the art and are routinely practiced in such a method. Absent evidence to the contrary, the steps can be performed in any order resulting in a successful liquefaction process. Given that EP'730 teaches performing the jet-cooking step first followed by a lower temperature treatment as claimed by applicant, one of ordinary skill in the art at the time of the claimed invention would have had a reasonable expectation of success in performing the steps in any order in a method of liquefying a starch-containing material such as those disclosed by Veit, Olsen, and/or Otto.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the

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unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1,2, 5, 17, 18-20, 24, 25 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 35,-43, 45, 46, 48, 49, 52 of copending Application No. 12/065,939.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Although the conflicting claims from each application are not identical, they are not patentably distinct from each other because each claim a process of producing a fermentation product comprising alpha-amylase, i.e. liquefaction including jet-cooking and milling as well as an SSF process wherein a glucoamylase is used.

The '939 application does claim specific enzyme amounts, however, optimizing such result effective variables would be well within the purview of one of ordinary skill in

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the art. As evidenced by the prior art of record, the steps are well known and routinely practiced in a liquefaction method, thus, temperatures within the claimed ranges, method steps performed and enzyme amounts, regardless of order are either anticipated or obvious over the reference claims. Further, applicants method is an open-ended method, i.e. reciting the language comprising, thus the methods taught by the prior art are encompassed by the method of the claimed invention.

Claims 1, 2, 5, 9, 10, 13, 14, 28, 29 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 2, 3, 4, 10, 13, 17, 18, 20, 21, 23, 38, 39 of copending Application No. 10/593,165.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Although the conflicting claims from each application are not identical, they are not patentably distinct from each other because each claim a process of producing a fermentation product comprising alpha-amylase, i.e. liquefaction including jet-cooking and milling. It is the examiner's position that the prior art references of record do teach a liquefaction comprising a jet-cooking step. The '165 application does claim specific enzyme amounts, however, optimizing such result effective variables would be well within the purview of one of ordinary skill in the art. As evidenced by the prior art of record, the steps are well known and routinely practiced in a liquefaction method, thus, temperatures within the claimed ranges, method steps performed and enzyme amounts, regardless of order are either anticipated or obvious over the reference claims. Further, applicants method is an open-ended method, i.e. reciting the language comprising, thus

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the methods taught by the prior art are encompassed by the method of the claimed invention.

Claims 1, 2, 5, 9, 10, 13, 14, 18-20, 23, 24, 25, 28, 35 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 18-24,27,28-37 of copending Application No. 11/629,370.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Although the conflicting claims from each application are not identical, they are not patentably distinct from each other because each claim a process of producing a fermentation product comprising alpha-amylase, i.e. liquefaction including jet-cooking and milling as well as an SSF process. It is the examiner's position that the prior art references of record do teach a liquefaction process comprising a jet-cooking step and a treatment at different temperatures, i.e. primary and secondary liquefaction steps. As evidenced by the prior art of record, the steps are well known and routinely practiced in a liquefaction method, thus, temperatures within the claimed ranges and method steps performed, regardless of order are either anticipated or obvious over the reference claims. Further, applicants method is an open-ended method, i.e. reciting the language comprising, thus the methods taught by the prior art are encompassed by the method of the claimed invention.

Claims 1,9, 10, 18, 20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 54, 55, 60, 61, 64 of copending Application No. 11/574,357.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Although the conflicting claims from each application are not identical, they are not patentably distinct from each other because both sets of claims comprise a liquefaction and saccharification step, milling and SSF. While applicants method does not require treating with a pullanase, the claim language of the instant application has open ended terminology which permits additional steps. Thus, the methods taught by the prior art are encompassed by the method of the claimed invention.

Claims 1,5,9,10,13 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 47-50, 52, 54, 57, 58, 61 of copending Application No. 11/718,641.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Although the conflicting claims from each application are not identical, they are not patentably distinct from each other because each claim a process of producing a fermentation product comprising alpha-amylase,i.e. liquefaction and milling. It is the examiner's position that the prior art references of record do teach a liquefaction process and a treatment at different temperatures, i.e. primary and secondary

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liquefaction steps. As evidenced by the prior art of record, the steps are well known and routinely practiced in a liquefaction method, thus, temperatures within the claimed ranges and method steps performed, regardless of order are either anticipated or obvious over the reference claims. Further, applicants method is an open-ended method, i.e. reciting the language comprising, thus the methods taught by the prior art are encompassed by the method of the claimed invention.

Conclusion

NO claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIFFANY M. GOUGH whose telephone number is (571)272-0697. The examiner can normally be reached on M-F 8-5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Majunath Rao can be reached on 571-272-0939. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ralph Gitomer/
Primary Examiner, Art Unit 1657

/Tiffany M Gough/
Examiner, Art Unit 1657